VIRUS-FREE
CERTIFICATE
CACHE (106)

WEB / FILE
SERVER (103)

VIRUS-FREE
CERTIFICATE
FIREWALL (105)

VIRUS-FREE
CERTIFICATE
AUTHORITY (104)

LAN/WAN
(102)

VIRUS-FREE
CERTIFICATE
PROXY (107)

CLIENT
WORKSTATION
(101)

FIG. 1

VIRUS-FREE CERTIFICATE (200)

(201)	FILE NAME
(202)	ISSUER
(203)	PUBLIC KEY VALUE
(204)	VALIDITY
(205)	SERIAL NUMBER
(206)	CERTIFICATE SIGNATURE
(207)	FILE SIGNATURE
(208)	ANTIVIRUS CHECKER 1
	ANTIVIRUS CHECKER n
(209)	CERTIFICATE STRUCTURE

Virus-free Certificate Rules Table (301)

Record (302)

File Template section (303)

File_Source (304)

File_Name (305)

File_Type (306)

File Antivirus Criteria section (307)

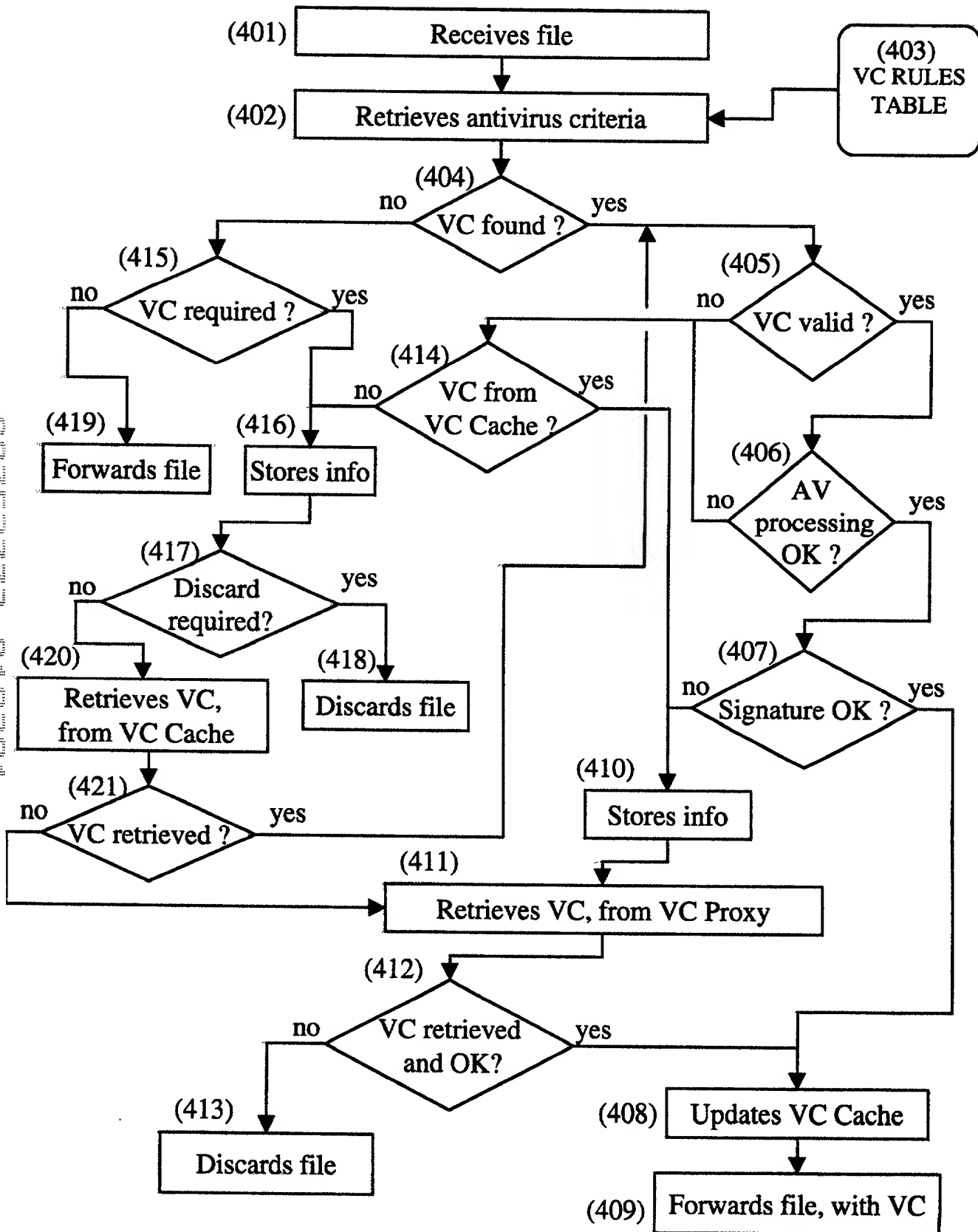VC_Required (308)

Valid_VC_Required (309)

File_Discard (310)

Required_AV_Checker_List (311)

Record (302)

. . .

(401) Receives file

(403) VC RULES TABLE

(402) Retrieves antivirus criteria

(404) VC found ?
- no
- yes

(415) VC required ?
- no
- yes

(405) VC valid ?
- no
- yes

(414) VC from VC Cache ?
- no
- yes

(419) Forwards file

(416) Stores info

(406) AV processing OK ?
- no
- yes

(417) Discard required?
- no
- yes

(420) Retrieves VC, from VC Cache

(418) Discards file

(407) Signature OK ?
- no
- yes

(410) Stores info

(421) VC retrieved ?
- no
- yes

(411) Retrieves VC, from VC Proxy

(412) VC retrieved and OK?
- no
- yes

(413) Discards file

(408) Updates VC Cache

(409) Forwards file, with VC

Virus-free Certificate Cache Table (501)

Record (502)

File section (503)

File_Name (504)

File_Type (505)

File_Size (506)

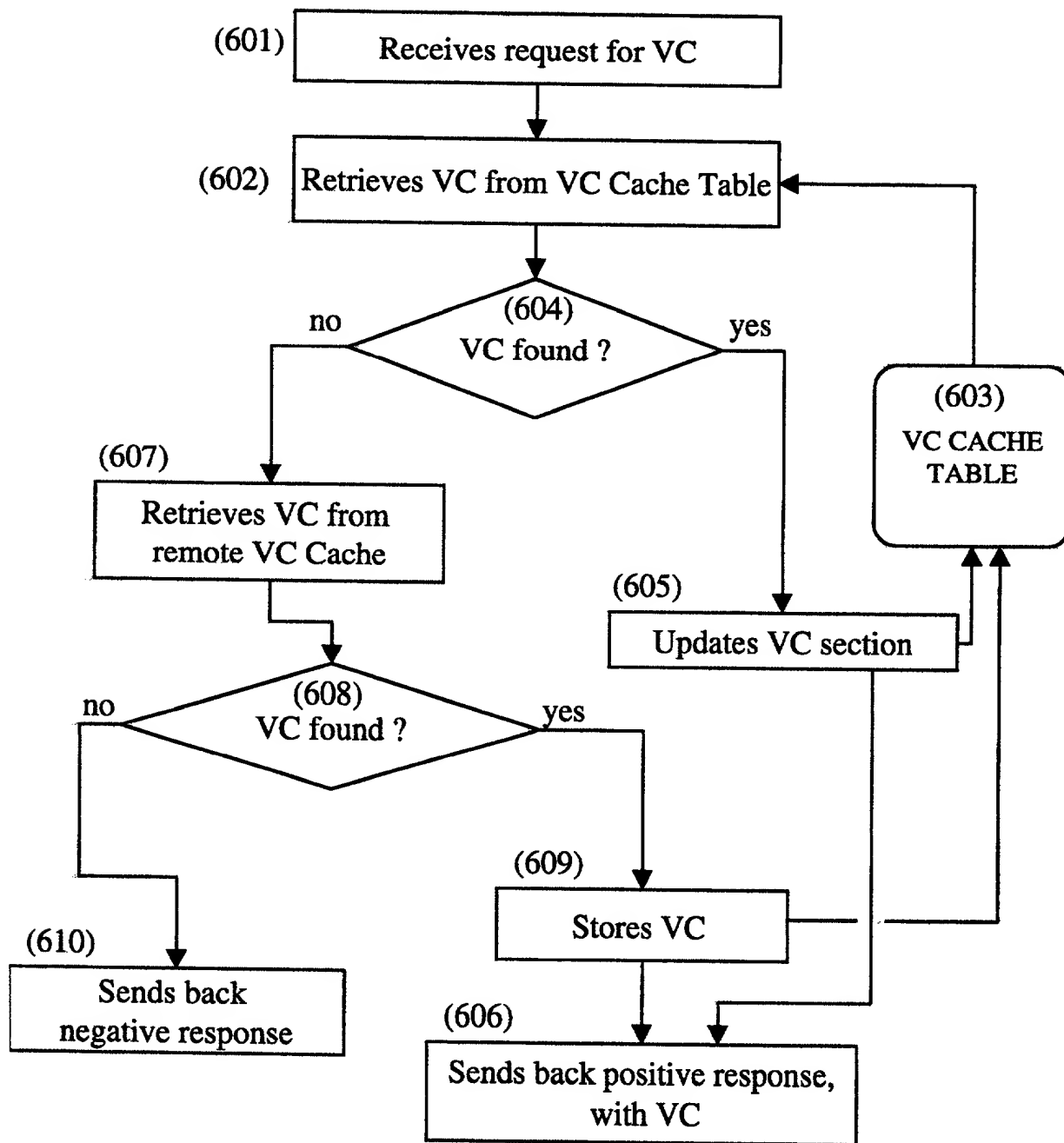File_CRC (507)

Virus-free Certificate section (508)
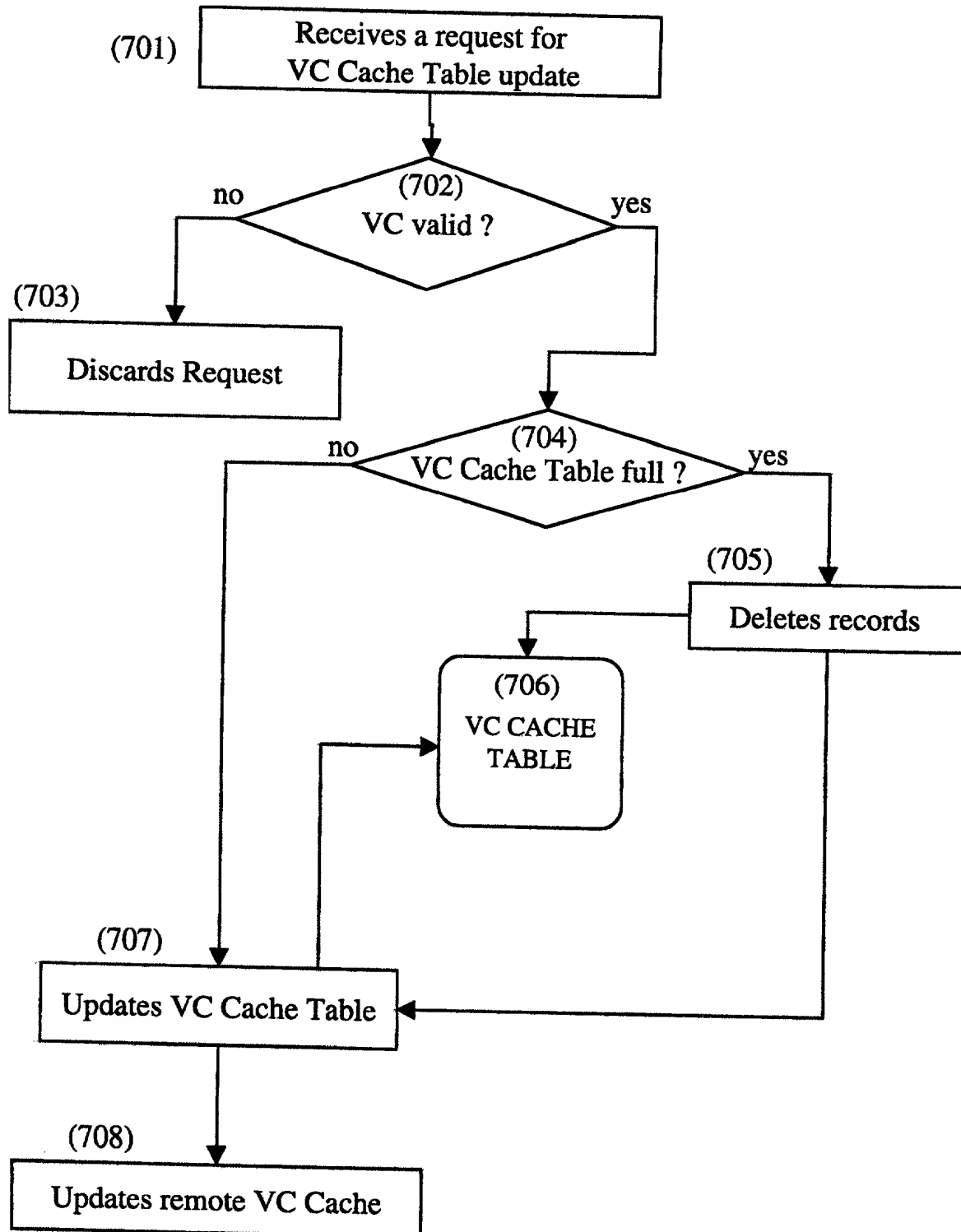
Virus-free Certificate (509)

Last_Date (510)

Number_Hits (511)

Record (502)

...

(601) Receives request for VC

(602) Retrieves VC from VC Cache Table

(604) VC found ?

no → (607) Retrieves VC from remote VC Cache

yes → (605) Updates VC section

(603) VC CACHE TABLE

(608) VC found ?

no → (610) Sends back negative response

yes → (609) Stores VC

(606) Sends back positive response, with VC

(701) Receives a request for VC Cache Table update

(702) VC valid ?

no → (703) Discards Request

yes → (704) VC Cache Table full ?

yes → (705) Deletes records

no

(706) VC CACHE TABLE

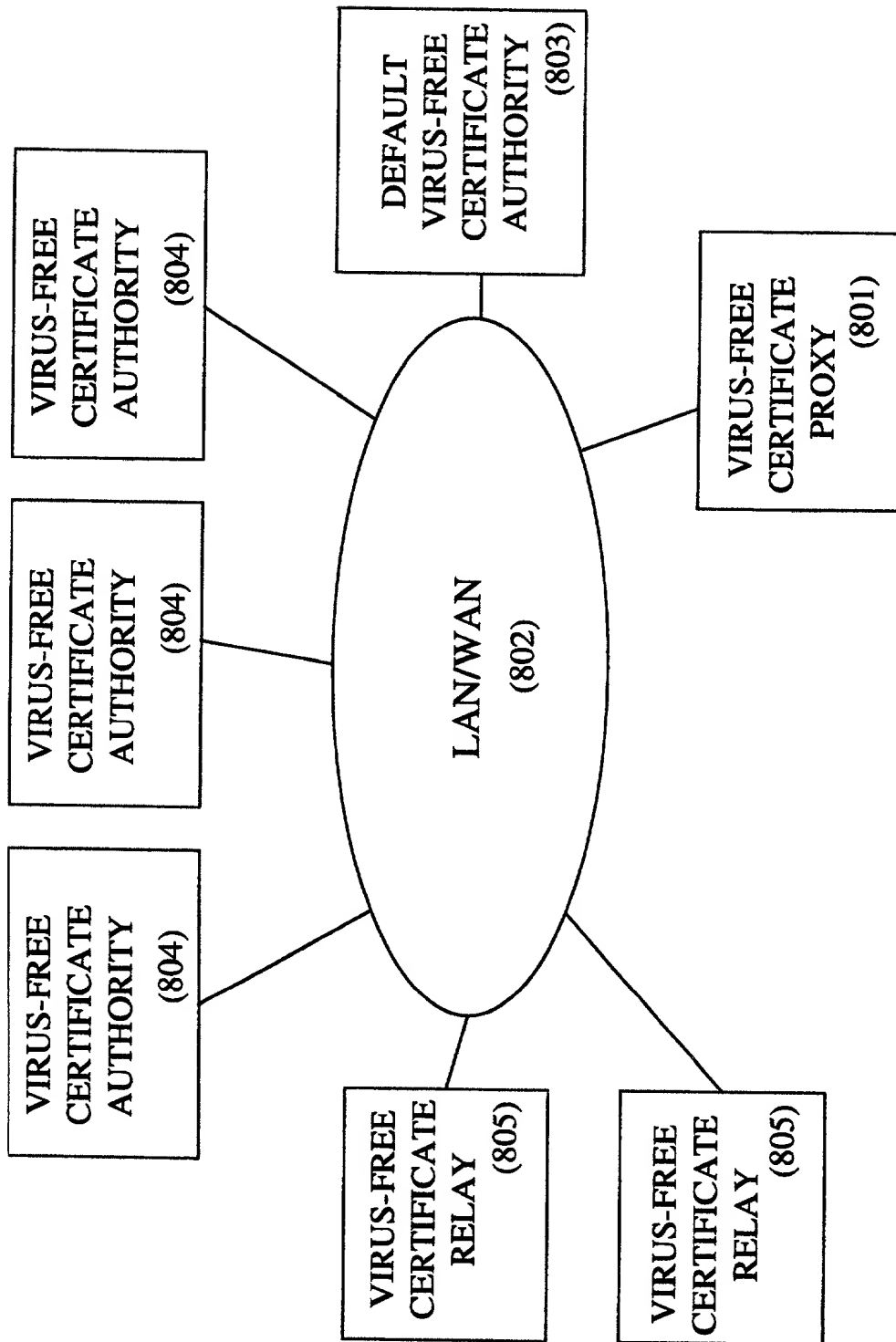(707) Updates VC Cache Table

(708) Updates remote VC Cache

FIG. 8

Virus-free Certificate Proxy Table (901)

Record (902)

File Template section (903)

File_Provider (904)

File Template section (905)

File_Identity (906)

File_Name (907)

File_Type (908)

File_Size (909)

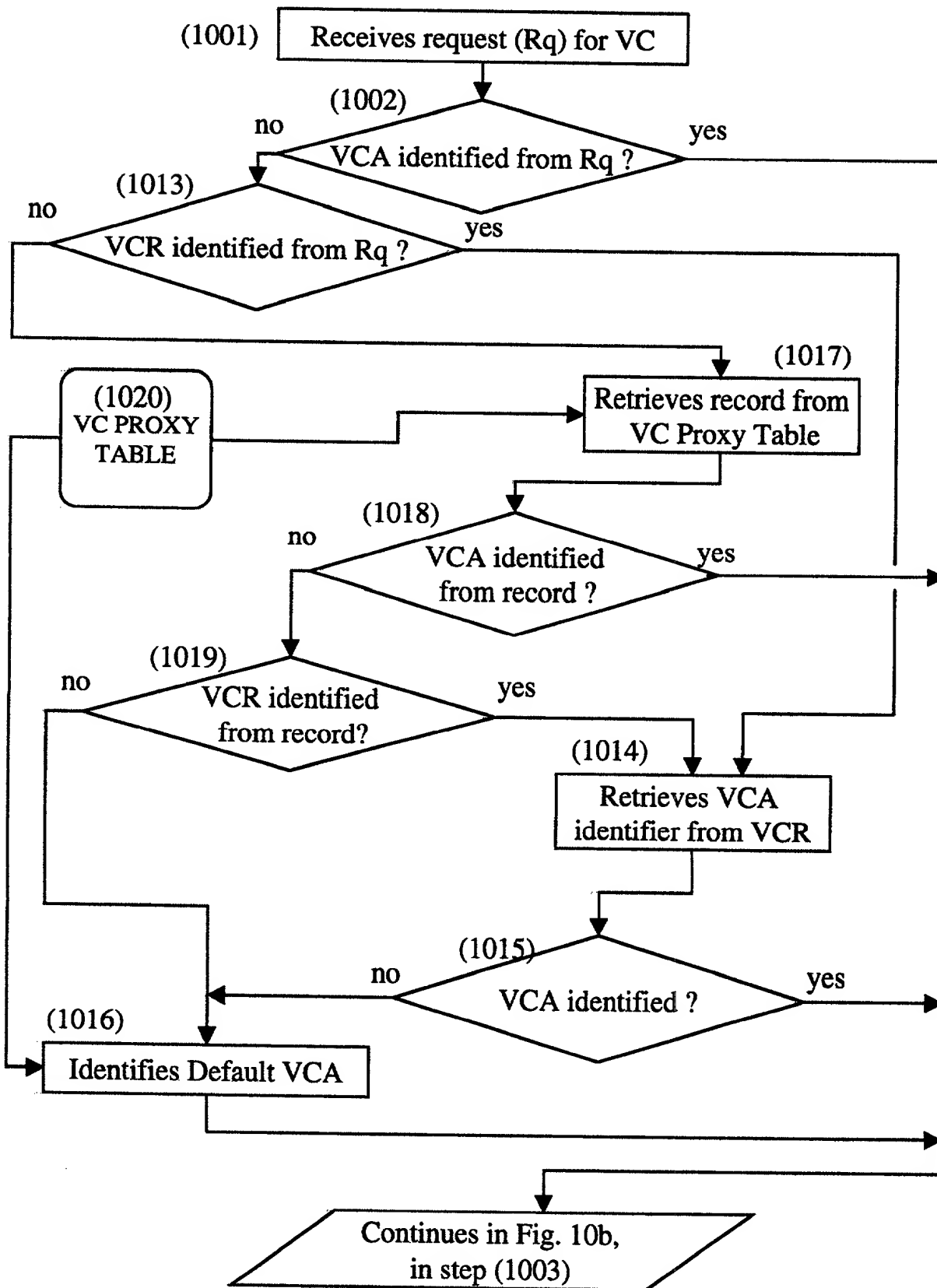File_CRC (910)

Virus-free Certificate Authority section (911)

VCA_Id (912)

VCR_Id (913)

AV_Checker_List (914)

Record (902)

. . .

(1001) Receives request (Rq) for VC

(1002) VCA identified from Rq ?
no — yes

(1013) VCR identified from Rq ?
no — yes

(1020)
VC PROXY
TABLE

(1017) Retrieves record from VC Proxy Table

(1018) VCA identified from record ?
no — yes

(1019) VCR identified from record?
no — yes

(1014) Retrieves VCA identifier from VCR

(1015) VCA identified ?
no — yes

(1016) Identifies Default VCA

Continues in Fig. 10b, in step (1003)

(1003) Retrieves VC from VCA,
using short request

no (1004) yes
VC retrieved ?

no (1006) yes
VCA requires the file ?

(1007) Retrieves VC from VCA,
using full request

no (1008) yes
VC retrieved ?

no (1009) yes
VCA is a Default VCA ?

(1012) Excludes VCA from
list of possible VCAs

Goes back to Fig 10a,
in step (1002)

(1010) Stores error

(1005) Sends positive response,
with VC

(1011) Sends negative response